

Fire Ecology, Forest Dynamics, and Vegetation Distribution on Square Butte, Chouteau County, Montana

Prepared for:

U.S. Bureau of Land Management
Lewistown District Office

By:

Elizabeth Crowe

Montana Natural Heritage Program
Natural Resource Information System
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EXECUTIVE SUMMARY

Square Butte is a singular landscape feature of southern Chouteau County in central Montana, an eroded remnant of Tertiary volcanic activity. Most of the land area on the butte is managed by the U. S. Department of the Interior, Bureau of Land Management (BLM) and has been designated an Area of Critical Environmental Concern (ACEC). The BLM partnered with the Montana Natural Heritage Program to conduct a survey of biological resources there, focusing on vegetation distribution and fuel loads in forested stands.

Forest, shrubland and grassland vegetation was pre-mapped into units using large-format aerial photos. Field surveys were conducted through approximately 65% of the BLM-managed portion of the butte to verify map unit boundaries and designations, to refine vegetation type assignment and to determine fuel loads. Fuel loads were estimated through the use of fuel models. No plant species of concern were sited.

Most of the vegetation on the butte consists of a mosaic of seral stages of two forested habitat

types (41%) and two woodland (forest-shrubland-grassland-rock outcrop) complexes (43%). Pure shrubland and herbaceous habitat types are a minor component (9%) within the ACEC boundary.

The primary stochastic ecological disturbance process on Square Butte is wildfire. The vegetation map (Figure 7) produced portrays the distribution of vegetative communities and units that are primarily a result of the last several hundred years of fire history.

While the vegetation is not unusual or unique, it does portray an interesting history of fires and forest succession unaltered by commercial timber cutting and road-building activities. Unroaded and unharvested forested areas are becoming increasingly rare in the United States, and Square Butte's designation as an Area of Critical Environmental Concern allows for future protection, study and enjoyment of a relatively natural landscape and its inherent processes.

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TABLE OF CONTENTS

Introduction	1
Study Area	3
Soils and Geology	3
Climate	3
Methods	6
Field Survey	6
Data Management and Vegetation Mapping	6
Results and Discussion	10
Species Adaptations to Fire	10
Trees	10
Shrubs	11
Graminoids	11
Plant Associations and Vegetation Map Units	12
Forest	12
Douglas-fir/Pinegrass Association	12
Mid- to late-seral Douglas-fir/Pinegrass Map Unit	12
Mid-seral Lodgepole pine (-Douglas-fir)/Pinegrass Map Unit	14
Douglas-fir/Common juniper Association	14
Early-seral Lodgepole pine (-Douglas-fir)/Common juniper and stagnant	
Lodgepole pine/Common juniper Map Unit	19
Mid-seral Lodgepole pine (-Douglas-fir)/Common juniper Map Unit	19
Mid- to late-seral Lodgepole pine (-Douglas-fir)/Common juniper Map Unit	22
Mid-seral interior Ponderosa pine (-Douglas-fir)/Common juniper -	
Douglas-fir/Common juniper Complex Map Unit	22
Douglas-fir/Common juniper Map Unit	22
Quaking aspen Communities and Map Units	25
Woodland	25
Douglas-fir/Idaho fescue-Mountain big sagebrush//Idaho fescue-Rock	
Outcrop Complex Map Unit	25
Douglas-fir/Idaho fescue-Mountain big sagebrush/Bluebunch wheatgrass-Bluebunch	
wheatgrass-Sandberg's bluegrass-Rock Outcrop Complex Map Unit	25
Rock Outcrop-Ponderosa pine Complex Map Unit	30
Shrubland	30
Mountain big sagebrush/Western wheatgrass Map Unit	30
Mountain big sagebrush/Rough fescue Map Unit	30
Mountain big sagebrush-western snowberry/Idaho fescue Map Unit	30
Mountain big sagebrush-western snowberry/bunchgrasses Map Unit	30
Western snowberry Map Unit	30
Grassland	32
Rough fescue-Bluebunch wheatgrass-Needle-and-thread-Sun sedge-Prairie	
sandreed-Silver sage/Needle-and-thread Complex Map Unit	32
Riparian	32
Douglas-fir/Western snowberry-Mixed riparian shrub-Mixed herbaceous	
Complex Map Unit	32
Herbaceous	32
Conclusions and Recommendations	34
Literature Cited (includes references cited in Appendix A & B)	35

APPENDICES

Appendix A. Global / State Rank Definitions

Appendix B. Association Descriptions

LIST OF FIGURES

Figure 1. Location of Square Butte in central Montana	2
Figure 2. Looking north from south of Arrow Creek	1
Figure 3. Soil map units on Square Butte from Chouteau County Soil Survey	4
Figure 4. Walter-type climate diagram showing average monthly temperature and precipitation (Western Regional Climate Center 2003).	5
Figure 5. Average monthly snowfall	5
Figure 6. Locations of traverse points, photo points, vegetation plot/walk-through surveys and used for mapping and describing vegetation	7
Figure 7. Map of vegetation units on Square Butte	8
Figure 8. Successional model for sites in Fire Ecology Group 6 that support both Douglas-fir and lodgepole pine (reproduced from Fischer and Clayton (1983))	13
Figure 9a-g. Mid- to late-seral Douglas-fir/Pinegrass map unit	15-16
Figure 10. Successional model for sites in Fire Ecology Group 7 in which lodgepole pine is a dominant seral species (reproduced from Fischer and Clayton (1983))	17
Figure 11. Successional model for sites in Fires Ecology Group 4 in which Ponderosa pine is a dominant seral species (reproduced from Fischer and Clayton (1983))	18
Figure 12a&b. Stagnant Lodgepole pine/common juniper	20
Figure 13a-e. Mid-seral Lodgepole pine (-Douglas-fir)/Common juniper	20-21
Figure 14a-c. Mid- to late-seral Douglas-fir/Common juniper	23
Figure 15a-c. Mid-seral Interior Ponderosa pine (-Douglas-fir)/Common juniper	24
Figure 16a-d. Douglas-fir/Idaho fescue – Mountain big sagebrush/Idaho fescue – Rock Outcrop Complex	26
Figure 17. Successional model for sites in Fire Ecology Group 5 (reproduced from Fischer and Clayton (1983))	27
Figure 18a-c. Douglas-fir/Idaho fescue – Mountain big sagebrush/Bluebunch wheatgrass – Bluebunch wheatgrass-Sandberg’s bluegrass – Rock Outcrop Complex	28-29
Figure 19. Mountain big sagebrush/Rough fescue Association	31
Figure 20. Needle-and-thread-sun sedge Association	31
Figure 21. Rough fescue-bluebunch wheatgrass Association	31
Figure 22a-b. Douglas-fir/Western snowberry – Mixed riparian shrub – Mixed herbaceous Complex	33